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Abstract

Employing recently assembled wage and price data, this paper sketches the long-term development of real wages at the Cape of Good Hope, from its foundation in 1652 up to the unification of South Africa in 1910. The results show that real wages were consistently above subsistence level, and living standards were continuously improving throughout the period under discussion. The comparison with the most developed parts of Europe has shown that during the early decades of the colony's existence, the Cape labourers had a relatively low purchasing power. Yet, by the end of the eighteenth century living standards began to close the gap, and during the nineteenth century, Cape living standards were on a par with those on the European continent. An analysis of growth rates suggests that during the second half of the seventeenth century growth was minimal. The eighteenth century was a period of steady (though not spectacular) growth of Cape living standards, while during the same century workers in other parts of the world saw their purchasing power diminish. The nineteenth century, on the other hand, was a period of a general rise of prosperity in Europe, in the light of which the Cape's welfare growth seems exceptionally slow (in spite of secure property rights and resource windfalls). These findings contrast with the conventional view of South Africa's economic history.

Keywords: Colonial history, growth, labour, living standards, South Africa

JEL codes: I30, N17, N30, N37

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1. Introduction

In the recent debates on the long-term economic effects of colonial rule, the distinct performance of ‘settler’ versus ‘extraction’ colonies is often emphasized.¹ South Africa, or the Cape Colony, as sub-Saharan Africa’s main settler colony, provides an interesting case for these debates. Yet, there is no consensus on how to assess South Africa’s economic development prior to the discovery of diamonds and gold in the second half of the nineteenth century. Traditionally, the Cape Colony of the seventeenth and eighteenth centuries has been regarded as a backward economy, almost entirely dependent on agriculture.² Development was hindered by the mercantilist policies of the Dutch East India Company (*Verenigde Oostindische Compagnie*, henceforth: VOC), a scarcity of capital and labour, and the limited size of the market. Thus, according to M. H. de Kock, ‘the Cape advanced with almost extreme slowness’.³ As recently as 2005, this view was put forward by Charles Feinstein, claiming that before the watershed of the 1870s ‘markets were small, conditions difficult, and progress slow’.⁴

This view has been contested by a number of scholars. Pieter van Duin and Robert Ross argue that ‘any description of the Cape’s economic life in terms of “overproduction” must be not only empirically false, but also conceptually absurd, since it is difficult to imagine any entrepreneurs who would continue to produce for a structurally glutted market, on which, presumably, they would continually be operating at a loss’.⁵ They suggest that the Cape economy was much more dynamic, and demonstrate a steady growth in the supply of, and demand for, the Cape’s agricultural products: a process that was driven to a large extent by the growth of its internal market.⁶ Willem Boshoff and Johan Fourie agree that the eighteenth century Cape Colony attained significant economic growth, but show that this was the result of both exporting goods to other settlements, and providing services to bypassing ships.⁷ Liam Brunt, on the other hand, claims that economic growth only took off after the British seized control over the colony in 1795, and was further stimulated after 1843 when property rights in land became more secure.⁸

The issue is far from settled; therefore this paper contributes by exploring the development of real wages at the Cape, from the beginning of European settlement in 1652 up to 1912, when other series become available.⁹ While GDP per capita is still the most widely

¹ Daron Acemoglu, Simon Johnson and James A. Robinson, ‘The Colonial Origins of Comparative Development: An Empirical Investigation’, *American Economic Review* 91 (2001) 1369-1401; and, *ibid.*, ‘Reversal of Fortune: Geography and Institutions in the Making of the Modern World Income Distribution’, *Quarterly Journal of Economics* 117 (2002) 1231-1294.

² C.W. de Kiewiet, *A History of South Africa. Social and Economic* (London: Oxford U.P., 1972); L. Guelke, ‘Frontier Settlement in Early Dutch South Africa’, *Annals of the Association of American Geographers* 66 (1976) 25-42; and, G. Schutte, ‘Company and colonists at the Cape’, in: Richard Elphick and Hermann Giliomee (eds.), *The Shaping of South African Society, 1652-1820* (London: Longman, 1979) 173-210.

³ M. H. de Kock, *Economic history of South Africa* (Cape Town: Juta, 1924) 39-40.

⁴ C. H. Feinstein, *An Economic History of South Africa. Conquest, Discrimination and Development* (Cambridge and New York: Cambridge University Press, 2005) 3.

⁵ P. van Duin and R. Ross, ‘The Economy of the Cape Colony in the Eighteenth Century’, *Intercontinenta* 7 (Leiden: Centre for the History of European Expansion, 1987) 3.

⁶ R. Ross, ‘The Cape of Good Hope and the world economy, 1652-1835’, in: Richard Elphick and Hermann Giliomee (eds.) *The Shaping of South African Society, 1652-1840* (Cape Town: Maskew Miller Longman, 1989).

⁷ W. H. Boshoff and J. Fourie, ‘The significance of the Cape trade route to economic activity in the Cape Colony: a medium-term business cycle analysis’, *European Review of Economic History* 14 (2010) 469-503.

⁸ L. Brunt, ‘Property rights and economic growth: evidence from a natural experiment’, *CEPR Discussion Paper no. 6404* (2007).

⁹ S. Bowden, B. Chiripanhura and P. Mosley, ‘Measuring and Explaining Poverty in Six African Countries: A Long-Period Approach’, *Journal of International Development* 20 (2008) 1049-1079.

used measure of the overall economy, these estimates are difficult to obtain and are subject to large margins of error, especially for the period before the twentieth century.¹⁰ Therefore, real wages constitute a more reliable source of information about living standards and the overall level of development before 1870.¹¹ In recent years, economic historians have made significant progress in the comparative study of real wages across the globe.¹² For this paper, wage and price data were compiled from a variety of sources, and real wages were then calculated using Robert Allen's subsistence basket methodology.¹³ This allows the assessment of the Cape Colony's economic performance in comparison with other parts of the world.

This paper proceeds as follows: the next section will more extensively discuss the different views in the literature on the Cape's economic development between 1652 and 1912, thereby identifying the main hypotheses to be tested. Section 3 then discusses the sources and methodology employed for calculating real wages. In section 4 the results will be analysed and put in a comparative perspective. Section 5 concludes with the implications for our understanding of South Africa's economic history and the debates on the long-term economic effects of colonialism, as well as providing some suggestions for further research.

2. Context and historiography

The Cape Colony was founded in 1652 as a refreshment station for ships of the VOC on their way to and from the East Indies. Because the Company had no intention of providing new homes for Dutchmen overseas, its sole purpose was to provide their vessels with fresh foodstuffs. Since it was not expected that the Cape station would make a profit on its own, the VOC tried to keep the costs of its administration to a minimum. The Dutch hoped they could provide for their needs primarily by trading with the indigenous inhabitants of the area, the Khoisan,¹⁴ as they seemed to have large herds of sheep and cattle. Yet, because the Khoisan did not grow crops, this soon proved impossible.¹⁵

Therefore, in 1657, a number of VOC employees were released from their contracts in order to become farmers at the Cape as free burghers. After the failure of European-style intensive agriculture during the early decades, these farmers switched to extensive agriculture, which required geographic expansion. Between 1679 and 1717 this type of production was supported by the Company. Immigration from Europe was actively stimulated (e.g. with the VOC paying for the immigrants' voyage), and land was made available to the settlers on a first come, first serve, basis. After 1717, however, immigration was no longer encouraged and

¹⁰ R. C. Allen, 'Real Wages in Europe and Asia: A First Look at the Long-term Patterns', in: Robert C. Allen, Tommy Bengtsson, and Martin Dribe (eds.) *Living Standards in the Past: New Perspectives on Well-Being in Asia and Europe* (Oxford: Oxford University Press, 2005) 157-185. J. Baten, D. Ma, S. Morgan and Q. Wang, 'Evolution of Living Standards and Human Capital in China in 18-20th Century', *LSE Working Paper* 122 (2009).

¹¹ S. Özmucur and S. Pamuk, 'Real Wages and Standards of Living in the Ottoman Empire, 1489-1914', *Journal of Economic History* 62 (2002) 293-321, there 294; and, J. L. van Zanden, 'The skill premium and the "Great Divergence"', *European Review of Economic History* 13 (2009) 121-153, there 121.

¹² R. C. Allen, J. P. Bassino, D. Ma, C. Moll-Murata, and J. L. van Zanden, 'Wages, Prices, and Living Standards in China, 1738-1925: In Comparison with Europe, Japan, and India', *Economic History Review* 64 (2011) 8-38.

¹³ R. C. Allen, 'The Great Divergence in European Wages and Prices from the Middle Ages to the First World War', *Explorations in Economic History* 38 (2001) 411-447.

¹⁴ The Khoisan consist of two different groups: the Khoikhoi nomadic herders and the San hunter-gatherers. R. Elphick, *Kraal and Castle. Khoikhoi and the Founding of White South Africa* (New Haven and London: Yale University Press, 1977) xxi-xxii.

¹⁵ Van Duin and Ross, 'The economy', 1.

population growth relied on high fertility rates among the settlers: the white population grew from 1,300 in 1700 to about 22,000 at the end of the century. Labour had to be supplied predominantly by the imported slaves from the shores of the Indian ocean,¹⁶ as well as indentured Khoisan. During this period the foundation of the Cape economy for the remainder of the eighteenth century was laid down. Cape Town, though not the only town, was the sole port and main market for agricultural products. Wine and wheat farms, worked by slaves, dominated the area surrounding Cape Town, while further into the interior pastoral livestock farmers occupied an ever expanding geographic area.¹⁷

It is this economy that has traditionally been so disapprovingly described as backward. Whereas during the 1660s and 1670s the colony was dependent on rice imports from Batavia to meet its needs, overproduction had become a serious economic problem since the beginning of the eighteenth century, as the market was limited to Cape Town and the number of passing ships, which had not significantly increased since the 1670s.¹⁸ Since there was 'virtually no foreign trade and very little internal trade', there was no outlet for farmers' surplus produce. Thus, in good years the farmers were hurt by this surplus of agricultural products leading to low prices, while in bad years they suffered from drought and crop failure.¹⁹ The dire economic situation encouraged many free burghers either to try and improve their situation by moving further away from the Cape peninsula to become self-sufficient pastoralists,²⁰ or to give up farming altogether and settle in Cape Town as artisans and traders.²¹

The restrictive policies of the VOC have all too often been pointed out as a main cause of the economic retardation and free burghers' misery. The Company placed numerous restrictions and prohibitions on external trade. Allowing private exports would have raised the prices obtainable by farmers, which would have made it difficult for the VOC to keep prices at the Cape low, thereby jeopardizing the initial purpose of the Cape as a refreshment station. But, even if the Company had allowed private trade, the impact on the farmers' situation would have been marginal: 'despite relentless smuggling and illicit trade, the Cape farmers did not prosper'.²² According to C. W. de Kiewiet, the real 'sinning' of the VOC was that it did not create a proper economic system suited to the Cape's specific climate and conditions.²³ With no significant capital investments made, and, lacking an appropriate export crop as the American colonies, the Cape suffered from the relatively high costs and low quality of its products, and its remote geographic location.²⁴ Although the situation improved somewhat with the take-over by the British in the late eighteenth century, economic progress remained relatively slow until the discovery of diamonds and gold in the second half of the nineteenth century.

According to Van Duin and Ross, this portrayal of the Cape's economy is not based on quantitative empirical evidence. Such extensive data in fact shows 'that the market for Cape products was much larger, more dynamic and quicker growing than has previously been thought.'²⁵ A selection of their most important numbers is reproduced in figure 1. On the basis

¹⁶ T. Keegan, *Colonial South Africa and the origins of the racial order* (Charlottesville: University Press of Virginia, 1996) 15.

¹⁷ Van Duin and Ross, 'The economy', 2.

¹⁸ Biewenga, *De Kaap*, 20.

¹⁹ Feinstein, *An economic*, 24.

²⁰ *Ibid.*

²¹ Thompson, *A history*, 36.

²² M. F. Katzen, 'White Settlers and the Origin of a New Society, 1652-1778', in: Monica Wilson and Leonard Thompson (eds.) *The Oxford History of South Africa. Vol. I.* (London: Oxford University Press, 1969) 183-232.

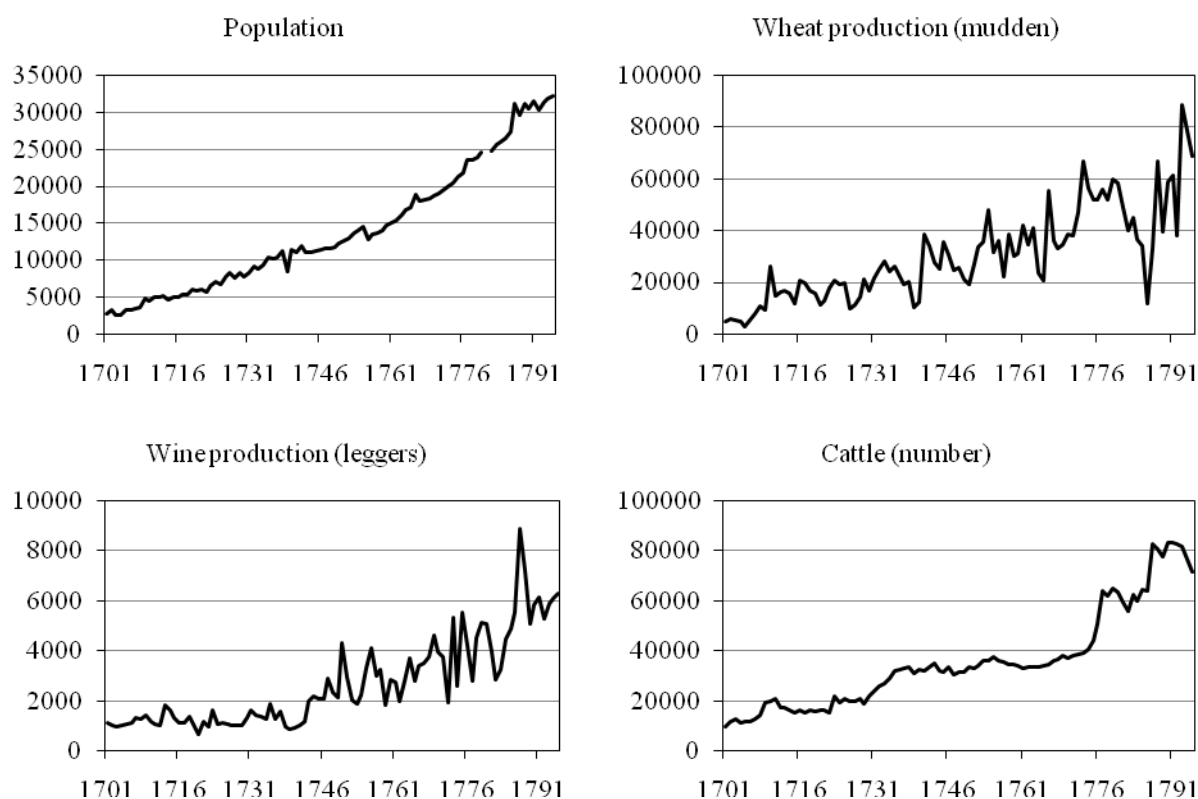
²³ De Kiewiet, *A History*, 10.

²⁴ Feinstein, *An economic history*, 24; De Kiewiet, *A history*, 10.

²⁵ Van Duin and Ross, 'The economy', 3.

of these figures, they have concluded that all major sectors of the Cape's agrarian economy, namely wheat and wine production and sheep and cattle ranching, underwent continual expansion and that this growth was in response to a steady expansion of the domestic, and, to lesser extent, external market.²⁶ This growth in production also led to a general increase in wealth, although Van Duin and Ross provide no evidence for this. Finally, they argue that, since the Cape economy was so dynamic, the VOC must have been a stimulant to economic growth.²⁷ These last two claims are obviously dubious: population growth might well have diminished any increases in per capita income supposedly caused by the rise in production, and production growth could have taken place *in spite of* rather than *because of* the VOC. Their latter claim is reinforced by the recent study of Boshoff and Fourie, who have shown that the passing ships (and thus the external trade controlled by the Company) did have a considerable economic impact, which they demonstrate via a statistically significant relationship between ship traffic and wheat, and, to lesser extent, wine production.

FIGURE 1: THE ECONOMY OF THE CAPE COLONY IN THE 18TH CENTURY. Source: Van Duin and Ross (1987).



Contrary to both these and the traditional accounts of the Cape economy, Liam Brunt suggests that economic growth was mainly stimulated by institutional changes during the early decades of British rule. He argues that insecure property rights and arbitrary taxation under the exploitative VOC government led to 'suboptimal' levels of investment and thus low levels of growth during the eighteenth century.²⁸ Only after 1795, when the British take over control of the economy, growth takes off. He demonstrates that agricultural output growth increases from 1.93 per cent per annum between 1701 and 1794 to 4.54 per cent annually

²⁶ Ibid., 88.

²⁷ Ibid., 6.

²⁸ Brunt, 'Property rights', 17.

between 1795 and 1813.²⁹ Another impetus to growth is given by the implementation of a new land holding system in 1843, which meant that the Cape farmers gained secure freehold property rights over their land. This led to increased fixed capital investment, such as irrigation (which increased the amount of land available for production) and machinery (which increased labour productivity). Brunt shows that between 1843 and 1875 a dramatic increase occurred in the amount of land under cultivation, as well as in output per worker, which is also supported by the pattern of real wages.³⁰ Feinstein, on the other hand, suggests that before the 1870s South Africa's economic growth compares unfavourably with the other areas of British settlement, but that after that growth accelerates. His claims are not based on any data on overall growth, but on indicators such as trade and immigration: predictably, the discovery of precious metals gave an enormous boost to export.

Thus, a multitude of views on the Cape's economic development continues to exist: ranging from the traditional interpretation of absolute stagnation before the 1870s, to claims of significant expansion during the first half of the nineteenth century and arguments in favour of dynamic eighteenth century growth. Claims have increasingly been backed up by quantitative empirical data. Consensus has, however, been hindered by the lack of a consistent overall growth measure (and data for such a measure) in the long run. Yet, a correct assessment of the Cape's growth trajectory is important not only for the sake of historiography, but can provide insights for the wider debates on colonialism and economic growth as well. Was British colonial rule economically more benign compared to that of other imperial powers? Do institutions and secure property rights matter more than factor endowments?

3. Wages, prices and living standards

Economic growth can be defined as a long-run rise in per capita income.³¹ In the absence of reliable per capita GDP estimates, long-run wages and prices provide a good alternative. Especially because pre-industrial and developing countries, such as the Cape Colony, are seldom very egalitarian societies, estimates of average GDP per capita in those countries give little information about the standard of living of the majority of the population.³² Therefore real wages of unskilled labourers are perhaps a better guide to the development in incomes of the working masses.

In order to compute real wages for the Cape, wage and price data were assembled from the VOC archives in The Hague for the seventeenth and eighteenth centuries, and the Colonial Office records in London regarding the nineteenth century and first decade of the twentieth century. As a commercial company, the VOC employed large numbers of clerks that recorded all sales and purchases, as well as revenues and expenditures, per establishment. At the end of the accounting year, copies of this administration were sent from the local trading posts to the Asian headquarters in Batavia, as well as to the Company's Chambers in Amsterdam and Zeeland. This collection of 'Received letters and documents from the Cape of Good Hope'³³ thus contains a variety of documents containing wages and prices and constitutes the main source for the seventeenth century. For the eighteenth century, data were also found in the *scheepssoldijboeken* (ship's pay-ledgers) that state the expenses made per

²⁹ Ibid., 23.

³⁰ Ibid., 25-27. It is unclear how these real wages are calculated, or where the data come from.

³¹ D. C. North and R. P. Thomas, *The rise of the western world. A new economic history* (Cambridge: Cambridge University Press, 1973).

³² Allen, 'Real Wages', 158.

³³ In Dutch: *Overgekomen brieven en papieren uit de Kaap de Goede Hoop*.

VOC ship sailing to and from the East Indies, including the expenses made on resupplying at the Cape. Additional data stems from the auction lists from the estates at the Cape, that are available online.³⁴

For the nineteenth century this paper relies on data from two main sources, both published annually: the ‘Colonial Blue Books of the Cape Colony’ for the period from 1835 up to 1850, and the ‘Statistical Tables of the British Colonies’ for the period between 1850 and 1913. The Blue Books stretch back as far as 1821, but only those from the years after 1835 contain wages and sufficient price data to construct a consumer price index (CPI). The data in these sources were collected by the British colonial administrators in South Africa and sent to the Colonial Office in London. Ewout Frankema and Marlous van Waijenburg, who worked with similar data for other British Colonies, note that the colonial administrations in Africa were ‘chronically under equipped’.³⁵ There were no strict guidelines for the collection of wage and price data and these figures were therefore almost literally ‘picked up from the street’.³⁶ Yet, there is some room for optimism, as it is expected that the colonial administrations in the Cape Colony, with high numbers of white settlers, were better staffed than in those colonies studied by Frankema and Van Waijenburg. Furthermore, the data are relatively detailed and there are only a few small gaps in the series.

It is important to note that the real wages computed with the data from these sources refer to Cape Town, and can only to a limited extent be seen as an indicator of living standards for the entire colony. Until other sources are discovered these data constitute the best available evidence and it is important to see what picture it sketches.

I

The first step in calculating real wages entails the establishment of the nominal wage level. The VOC muster rolls are a well-known source for studying the personnel of the VOC.³⁷ These rolls state monthly wages of company servants employed at the different VOC establishments in the East Indies. Sophia du Plessis and Stan du Plessis have assembled wages from a five of these rolls on the Cape establishment for the period between 1699 and 1790.³⁸ To these, wages from the years 1657 and 1658 were added.³⁹ The data make clear that, like in the other VOC establishments in Asia,⁴⁰ and in Amsterdam itself,⁴¹ guilder wages were stable throughout the seventeenth and larger part of the eighteenth centuries. Only towards the end of the eighteenth century, Du Plessis and Du Plessis found a significant

³⁴TEPC Transcription Project (Cape Town), Inventories of the Orphan Chamber: <http://databases.tanap.net/mooc/>.

³⁵E. Frankema and M. van Waijenburg, ‘African Real Wages in Asian Perspective, 1880-1940’, *CGEH Working Paper 2* (Utrecht University, 2011).

³⁶Ibid., 4.

³⁷See for example: F. S. Gaastra, *De geschiedenis van de VOC. Opkomst, bloei en ondergang* (Leiden: Walburg Pers, 2009) 81.

³⁸S. du Plessis and S. du Plessis, ‘Happy in the Service of the Company: The Purchasing Power of VOC Salaries at the Cape in the 18th Century’, *Working Paper* (Stellenbosch University, 2009) 6.

³⁹VOC 3991 and 4038.

⁴⁰Such as in Bengal: F. LeQuin, *Het personeel van de Verenigde Oost-Indische Compagnie in Azië in de achttiende eeuw, meer in het bijzonder in de vestiging Bengalen* (Leiden, 1982) 343; or Ceylon, discussed in another paper: P. de Zwart, ‘Population, labour and living standards in Ceylon: An empirical contribution to the Divergence debate’, *Mimeo* (2011). This is also suggested by Matthias van Rossum, ‘De intra-Aziatische vaart: schepen, zeelieden en ondergang van de VOC?’, *Tijdschrift voor Sociale en Economische Geschiedenis* (forthcoming 2011). This concerns the ‘standard’ wage; wages could of course increase depending on individual careers.

⁴¹Allen et al., ‘Wages, prices’, 19.

increase in soldiers' wages.⁴² In other real wage studies, wages of unskilled building labourers are employed to sketch the standard of living for the average worker. Unfortunately, no long-run wage series on those labourers are available (yet). The wages of soldiers therefore present an alternative. The soldier is the most frequently mentioned profession in the muster rolls and represents the lowest rank on the VOC wage-ladder. Furthermore, VOC officials outnumbered adult male free burghers at the Cape far into the eighteenth century.⁴³

To what extent does the wage paid by the VOC to its soldiers represent the overall wage level prevailing in the Cape Colony between 1652 and 1795? One problem is that VOC officials received housing and other emoluments apart from their monthly salaries, yet the value of these additional remunerations is unknown. Furthermore, according to Ad Biewenga, the average wage of construction labourers in the service of free burghers was between 13 to 14 guilders per month around 1700,⁴⁴ somewhat higher than that of the VOC soldier who made 9. The wages of 'free' rural servants averaged between 9 and 10 guilders per month.⁴⁵ These issues suggest that the real wages calculated for soldiers offer a lower bound estimate for the standard of living at the Cape. In addition, it is unclear whether the considerable increase in the soldiers' wage in 1790 reflect economic changes at the Cape, or if it rather reflects an increase in demand for military labour in Europe as a result of the unrest following the French Revolution. In the light of these issues, four wages series are shown in this paper: the first is the VOC soldiers' wage without an increase towards 1790, the second is the same but with this increase, the third and fourth are Biewenga's building labourers and rural servants wages assumed to be sticky over the Dutch period. Further research has to point out which of these is more accurate.

Regarding the nineteenth century, the Blue Books and Statistical Tables contain data on the prevailing 'average wage rates' for 'European' and 'coloured' workers in various occupations.⁴⁶ For the purposes of this paper, being concerned with long-term trends, the analysis is limited to European unskilled urban and rural wages, since those wages were also available for the earlier period.⁴⁷ A problematic issue with these wages is that many of these included 'board and lodging'. Based on 'average rates of board and lodging' and 'average monthly rent' (also stated in the sources for a number of years) and those years for which wages in the same professions were reported excluding board and lodging, it was estimated that those wages including board and lodging had to be increased by 100 percent. Furthermore, lacking urban unskilled wage data for the late 1830s and 1840s, these wages were extrapolated based on the rural wage level.⁴⁸

All wages were reported in guilders (during the Dutch period) or pounds sterling (during the British period) and had to be converted into grams of silver in order to make comparisons over time and space.⁴⁹ Despite the stable guilder wage, silver wages fluctuated with the changing silver value of the Asiatic guilder (as can be seen in table 1). Finally, wages were often reported as monthly rates, but calculating real wages involves daily and annual rates. In earlier real wage studies, it is assumed that the average working man worked 250 days per year (5 days per week for 50 weeks).⁵⁰ The calculations in this paper are based on the

⁴² Soldiers' wages increased from 9 to 13 guilders per month in the period between 1773 and 1790.

⁴³ Schutte, 'Company and colonists', 185.

⁴⁴ Biewenga, *De Kaap*, 101.

⁴⁵ Ibid.

⁴⁶ In some cases, minimum and maximum rates were reported. For conversions to average rates, see appendix.

⁴⁷ This is not to say that the wages of coloured workers, or skilled wages are not important. On the contrary, these are discussed in another paper: P. de Zwart, 'South African Living Standards in Global Perspective, 1835-1910', *Economic History of Developing Regions* 26 (forthcoming 2011) 48-73.

⁴⁸ Using the following equation: $URBAN\ WAGE = 1.124\ RURAL\ WAGE + 0.9892$ $R^2 = 0.53$

⁴⁹ See appendix.

⁵⁰ Allen, 'The Great Divergence', 425.

same assumption.⁵¹ Table 1 shows nominal silver wages in and around Cape Town, 1653-1913.

TABLE 1: NOMINAL DAILY WAGES AT THE CAPE, IN GRAMS OF SILVER. Sources: see text.

	Soldier1	Soldier2	Building Labourer	Rural Labourer
1653-1680	3.39	3.39	4.89	3.58
1681-1742	3.32	3.32	4.80	3.51
1743-1768	3.47	3.47	5.02	3.67
1769-1772	4.15	4.15	6.00	4.38
1773-1790	4.15	5.13	6.00	4.38
1791-1795	4.15	6.00	6.00	4.38
1796-1834			Urban Labourer	Rural Labourer
1835-1844			17.37	12.87
1845-1854			16.11	13.00
1855-1864			19.38	14.22
1865-1874			17.23	13.15
1875-1884			24.64	18.77
1885-1894			15.43	13.47
1895-1904			21.04	16.01
1905-1913			22.23	16.85

II

To convert these nominal wages into real wages, it is necessary to calculate the cost of living at the Cape. This involves the creation of a consumption basket that reflects the consumption pattern of South African labourers, as well as price series of products included in that basket, in order to construct a CPI. Following Allen et al., a consumption basket was created that reflects the cost of subsistence: it provides little over 1940 calories per day from the cheapest available carbohydrate at the Cape (wheat) and at least the recommended daily intake of protein (46 grams). In addition, some cloth and fuel are also included in the basket (see table 2). It would be hard for a man to survive on less than this basket.⁵²

The basket closely resembles the baskets created by Allen et al. for Europe and Asia. There are three reasons for this. First of all, this makes the global comparisons both easier and more meaningful. Secondly, consumption patterns are to a large extent culturally bound,⁵³ and as the Cape Colony was first a Dutch, and then a British colony with a high number of settlers from European descent, it is likely that the consumption patterns there were more or less similar to the consumption pattern in Europe. Third, the climate and geography of South Africa were not much different from Spain, and allowed the cultivation of crops that were

⁵¹ In an earlier paper, I made calculations based on the maximum amount of days worked per year: 300: De Zwart, 'South African'. Although this suits better the notion of a maximum work effort for a subsistence lifestyle, it distorts comparisons with data based on 250 working days, e.g. Allen et al., 'Wages, prices'.

⁵² Allen et al., 'Wages, prices', 22.

⁵³ Allen et al., 'Wages, prices', 23.

also available in Europe ‘which made possible the continuation of basic European food practices’.⁵⁴

TABLE 2: CAPE BAREBONES SUBSISTENCE BASKET. Based on Allen et al. (2011).

	Unit	Quantity per person per year	Nutrients per kg		Nutrients per day	
			Calories	Grams of Protein	Calories	Grams of Protein
Wheat	kg	173	3430	133	1626	63
Beans	kg	20	3383	213	185	12
Meat	kg	5	2500	200	34	3
Butter	kg	5	7268	7	100	0
Soap	kg	1.3				
Candles ⁵⁵	kg	1.3				
Lamp oil	litre	1.3				
Cotton	m ²	3				
Fuel	mbtu	3				
Total					1945	78

Prices for the products in the basket could be found in a variety of documents. For the seventeenth century, prices were taken from expense bills (prices of products loaded on bypassing ships) and trade books (prices of products stored in the Cape Town warehouse) that were part of the ‘received letters and documents from the Cape of Good Hope’. Prices for the eighteenth century were found in the VOC *scheepssoldijboeken* and in the so-called *rendementen* (lists presenting evidence on the profits that were made on the sale of goods) that for the Cape still exist for the period 1747-1775 (also part of the ‘received letters’), as well as prices from the auction lists.⁵⁶ For the nineteenth century ‘average market prices of consumables’, ‘average prices of agricultural produce’ and import and export prices were found in the Blue Books and Statistical Tables. Prices were given in guilders or pounds sterling and in different kinds of old Dutch and British units of measurement. These units were converted to metric ones and prices were, as wages, converted into grams of silver. Gaps in the data were filled through inter- and extrapolation.⁵⁷

As these prices were gathered from different sections in a variety of sources, some of these reflect the average market prices of consumer products, while others reflect the prices of unfinished bulk goods or prices paid by large institutions. Not all prices are thus equally representative for the actual prices paid by consumers. The issue does not appear to be very problematic, since if it would have any significant effect on the CPI, it would have been to push it down. As is shown in figure 2, Cape prices are on the same (high) level as in London during the seventeenth and early eighteenth century. After this, prices decline to a relatively low level, which is notable in variety of sources and therefore assumed to be genuine. Du Plessis and Du Plessis argue that these falling prices in the context of steadily increasing

⁵⁴ S. C. Jordan, Coarse Earthenware at the Dutch Colonial Cape of Good Hope, South Africa: A History of Local Production and Typology of Products. *International Journal of Historical Archaeology* 4 (2000) 113-143, there 141.

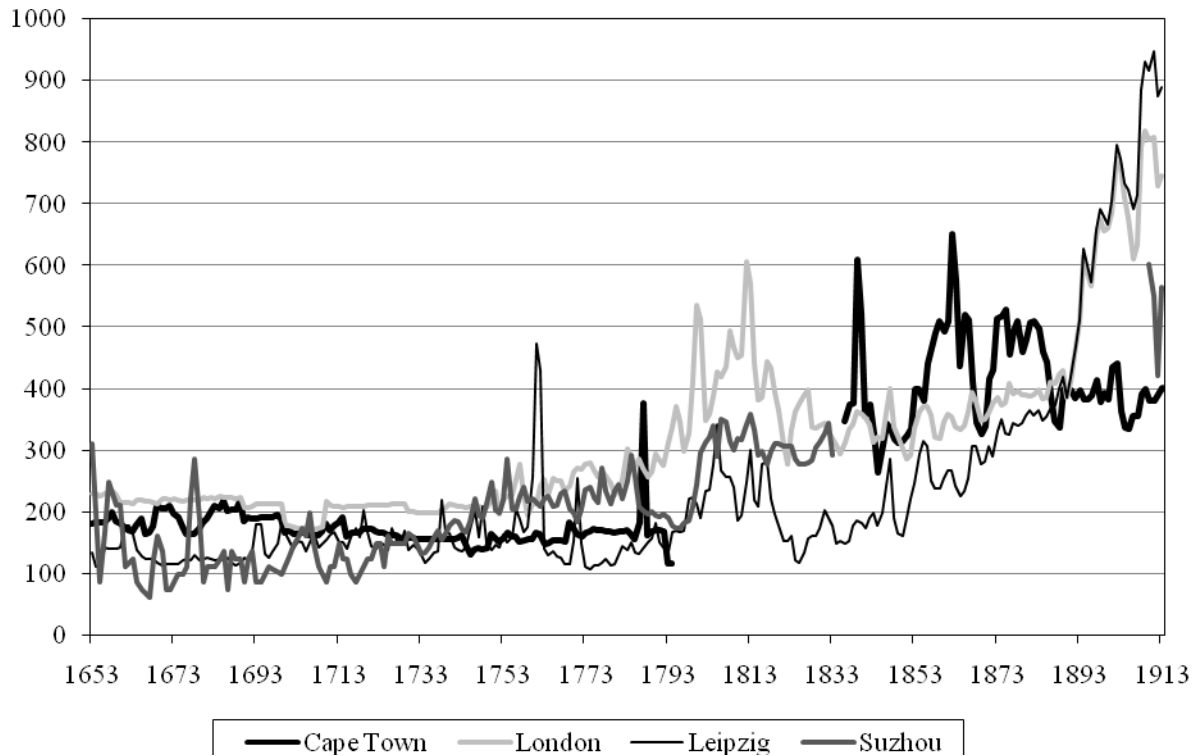
⁵⁵ For the period 1836-1913 no price series of lamp oil exist, therefore, during that period, lamp oil was replaced by extra quantities of candles (2.6 kg. total).

⁵⁶ These lists are available online, and could be found at: TEPC Transcription Project (Cape Town), Inventories of the Orphan Chamber: <http://databases.tanap.net/mooc/>.

⁵⁷ Specific details on these conversions and inter- and extrapolations of the data are discussed in the appendix.

production (as shown by Van Duin and Ross) suggest an expanding and more productive market economy, and not oversupply ‘which would have led to contracting production over time’.⁵⁸ During the nineteenth century prices were relatively high until the 1880s and declining thereafter, there is thus no observable consistent downward bias in the CPI. Furthermore, these issues do not alter (and, in fact, only strengthen) the most important conclusions of this paper, as it would have increased the CPI (and thus lowered the welfare ratios for the nineteenth century).

FIGURE 2: ANNUAL BASKET PER PERSON, GRAMS OF SILVER PER DAY: CAPE, EUROPE AND CHINA, 1653-1913. Sources: Cape: see text; Europe and China: Allen et al. (2011).



Another outstanding feature of figure 2 is that whereas Cape prices during the nineteenth century fluctuated a great deal, they were relatively stable during the seventeenth and eighteenth centuries. This reflects the influence of the VOC on prices. Ideally one would have had prices showing fluctuations caused by swings in demand and supply. Harvest failures leading to food scarcities and high prices were a fact of life everywhere in the world during this period. Prices also increased in the short term with the arrival of many ships during summers and autumns.⁵⁹ Fortunately, because the VOC was not an effective monopolist,⁶⁰ it could go against the force of the free market only to a limited extent, as is also testified by the sharp increase in the CPI during the Fourth Anglo-Dutch War of the 1780s. Furthermore, short run peaks and troughs have no consequences for the long-term trend,⁶¹ which is the main concern of this paper.

⁵⁸ Du Plessis and Du Plessis, ‘Happy in the Service’ 35.

⁵⁹ N. Worden, E. van Heyningen, and V. Bickford-Smith, *Cape Town. The making of a city. An illustrated social history* (Hilversum: Verloren Publishers) 53.

⁶⁰ Ross, ‘The Cape of Good Hope’, 247-248.

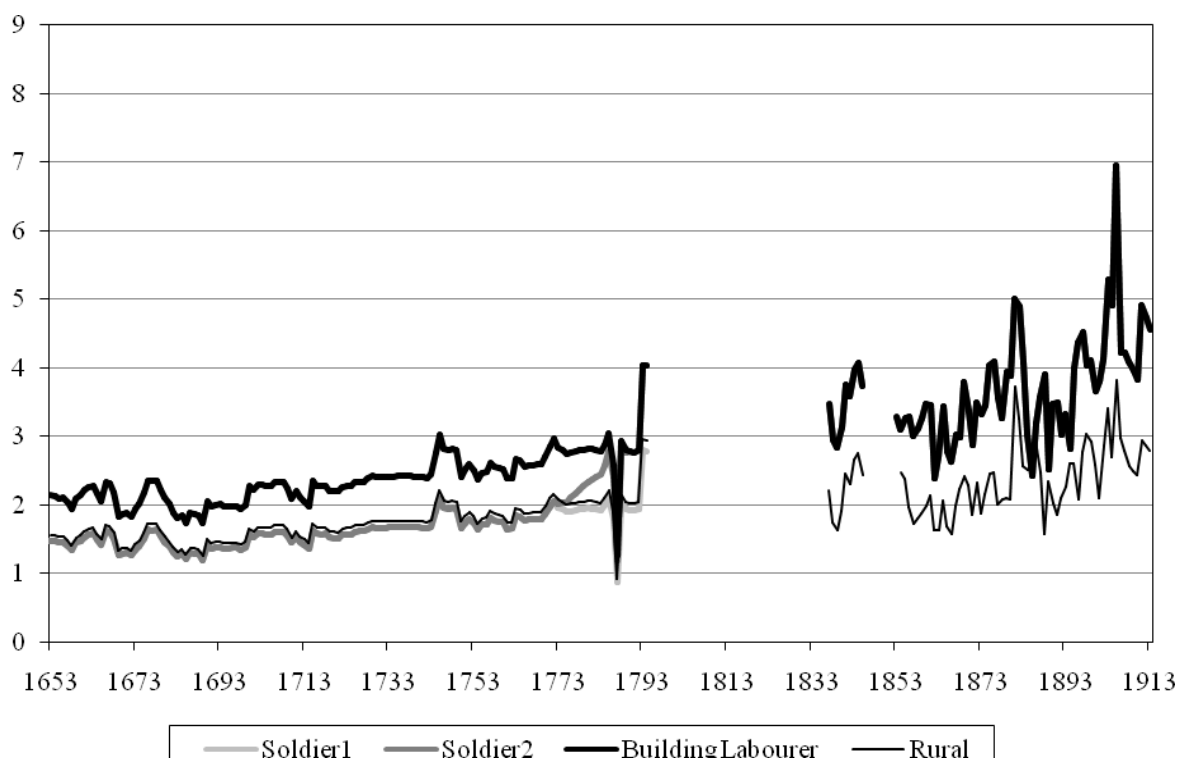
⁶¹ A. J. du Plessis, *Die Geskiedenis van die Graankultuur in Suid-Afrika, 1652-1752* (Cape Town: Nasionale Pers, 1933) 78.

III

The barebones basket fits the nutritional requirements for one adult male, yet if a labourer supported a family, expenditures would have been higher. Therefore the prices shown in figure 2 have to be multiplied by three to represent the annual budget of a family. It is estimated that this increase will be enough to fit the caloric norms for a man, a woman and two young children.⁶² It can thus be determined whether a worker was able to support a family at subsistence level. Next to the products included in the basket, a family would have had to pay rent.⁶³ Allen suggests that rent generally amounted to not more than 10 percent of total expenditure, and it was estimated that the English working class in the late eighteenth and early nineteenth centuries spent 4-5 percent of their total expenses on rent.⁶⁴ Lacking sufficient evidence on rent in Cape Town, the same assumption is used in this paper. Thus, in order to calculate an annual family budget including rent, the prices of the baskets presented in figure 2 had to be multiplied by 3.15.⁶⁵

A welfare ratio can then be derived by dividing the annual nominal wage of a worker by the annual family budget. When the welfare ratio equals one, a man earned just enough to support his family at subsistence level. Higher values indicate that a man was able to support his family at a higher welfare level, while values below one imply that the family size had to be reduced, the man had to work more days or the woman had to find a job, since reducing costs is not an option with the barebones annual budget.

FIGURE 3: WELFARE RATIOS AT THE CAPE, 1653-1913. Sources: see text.



⁶² Allen et al., 'Wages, prices', 26.

⁶³ Allen, 'The great divergence', 426.

⁶⁴ Ibid., 422

⁶⁵ Allen et al., 'Wages, prices'.

Figure 3 demonstrates a rising trend for all real wages throughout the Dutch period. Welfare ratios were consistently above 1, and only during the short-term crisis of the 1780s the welfare ratios of the most pessimistic estimates ('soldier 1' and 'rural') dropped below subsistence level. On the basis of similar results Du Plessis and Du Plessis have advocated against stagnation during the eighteenth century. Since the rising real wages were to a significant extent the consequence of falling prices, 'the opportunity for a higher standard of living would have spread to the entire population', not just those employed by the VOC.⁶⁶ A positive effect of the VOC policies might have been to avert many crisis of subsistence caused by harvest failures. During the nineteenth century real wages fluctuated more, being influenced more profoundly by the swings of supply and demand, yet the rising trend was retained.

4. Growth rates and global comparisons

The Cape was surely more developed in 1912 than it had been in 1652, yet the problem remains to determine when the Cape economy grew most rapidly. If high living standards are an indicator of a high level of economic development, then a rise in living standards can be seen as an indicator of economic growth. By measuring the average annual growth rate of welfare ratios over various periods, it is thus possible to determine during which period growth was most impressive.

To do so, the 260 years under discussion were divided into 6 sub-periods: three of these cover the Dutch period, and three the British era. In order to avoid short-run peaks to influence the results, seven-year-averages of the welfare ratio were taken at the beginning and the end of each sub-period. Hence, the average annual growth rate for the second half of the seventeenth century was measured between the average welfare ratio in the period 1653/1659 and the average welfare ratio in the period 1697/1703.⁶⁷ The same procedure is followed for the other periods. The results for the four different real wage series are shown in table 3. Evidently, using three series with sticky nominal wages between 1653 and 1795 but with a difference in levels (soldier1, building labourer and rural servant), produces similar growth rates during that period, but leads to very different results for the first period of British rule. Unlike the other series, soldier2 shows a significant rise at the end of eighteenth century, but, as noted above, it is unclear whether this reflects economic conditions at the Cape.

TABLE 3: AVERAGE ANNUAL PERCENTAGE GROWTH RATES OF WELFARE RATIOS.

	1656-1700	1700-1750	1750-1792	1792-1840	1840-1872	1872-1910
Soldier1	0.07	0.42	0.43	0.91	0.08	0.58
Soldier2	0.07	0.42	1.30	0.16	0.08	0.58
Building Labourer	0.07	0.42	0.43	0.14	0.08	0.58
Rural Servant	0.07	0.42	0.43	-0.47	0.09	0.65

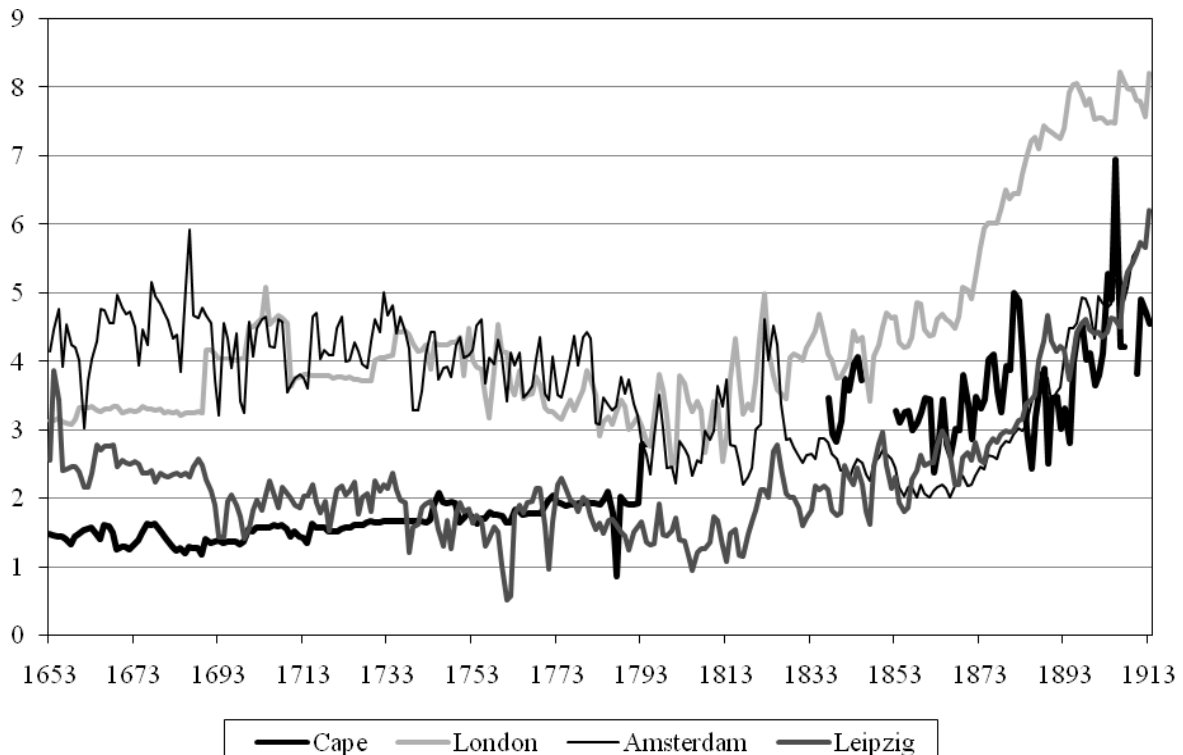
⁶⁶ Du Plessis and Du Plessis, 'Happy in the service', 35.

$$= \left[\sqrt[t]{\frac{x}{y}} - 1 \right] \times 100$$

⁶⁷ The average annual growth rate was then calculated by the equation: r
Where: r = the average percentage growth rate; t = the difference in years between the first and last reading; y = the welfare ratio during the first seven-year-average; and x = the welfare ratio during the last seven-year-average.

Despite these dissimilarities, a number of conclusions can be drawn from these results. First, real wages were relatively low and growth was minimal during the first half century of the colony's existence. Second, although the results are for now inconclusive, it seems hard to consider the eighteenth century as a century of general stagnation. Third, the period following the British implementation of a new land holding system in 1843 did not lead to a significant rise in prosperity for the working population. Fourth, although the decades of the resource windfalls did see some growth in living standards, the results perhaps fall short of the expectations.

FIGURE 4: WELFARE RATIOS IN CAPE TOWN AND EUROPE, 1653-1913. Sources: Cape: see text; Europe: Allen et al. (2011).



Comparing the Cape real wage developments with those taking place in other parts of the world might further illuminate the issue. In the light of the debate on the 'Great Divergence' between Europe and Asia, Allen et al. have computed real wages for various parts of Asia and Europe. These real wages showed that living standards in north-western Europe were well above those in Asia, and other parts of Europe, long before industrialization. Since I have used a similar methodology, their data can be put next to the welfare ratios calculated for the Cape. Figure 4 compares the welfare ratio of soldier1 (the most pessimistic series) with the welfare ratios in the most developed parts of Europe. From the figure it is clear that whereas between 1653 and 1700 the Cape labourers had the lowest purchasing power, by the end of the eighteenth century living standards had caught up with Leipzig and began to close the gap with London and Amsterdam. During the nineteenth century, Cape living standards were on a par with those on the continent although not reaching the extraordinary high levels of industrialized Britain.

TABLE 4: ANNUAL PERCENTAGE GROWTH OF WELFARE RATIOS BETWEEN 1653 AND 1913: CAPE, EUROPE AND ASIA. Source: Cape: see text; Europe: Allen et al. (2011).

Period	Soldier1	Soldier2	Build Lab.	London	Amsterdam ⁶⁸	Leipzig
1656-00	0.07	0.07	0.07	0.74	-0.11	-1.07
1700-50	0.42	0.42	0.42	-0.06	-0.01	-0.05
1750-92	0.43	1.30	0.43	-0.77	-0.66	-0.39
1792-40	0.91	0.16	0.14	0.57	-0.43	0.75
1840-72	0.08	0.08	0.08	0.94	-0.19	0.77
1872-10	0.58	0.58	0.58	1.00	2.27	1.99

The comparison of annual average growth rates in table 4 mostly strengthen the conclusions drawn earlier. The increase in purchasing power of the Cape labourers throughout the eighteenth century is striking in the light of a general decline in living standards in Europe. Cape real wage growth rates after the mineral discoveries, on the other hand, are puny compared with those of Amsterdam, Leipzig and London. The later nineteenth century was a period of declining international freight rates, and increasing productivity and prosperity. Agricultural producers could benefit from rising demand on European markets. From this perspective, the Cape's nineteenth century welfare growth seems exceptionally slow. The preliminary results of this paper thus do not support the notion of stagnation during the eighteenth century. Nor do they suggest that British rule was more benign than Dutch rule, or that secure property rights in land led to dramatic increases in welfare for working masses. Finally, the mineral discoveries might have given a boost to exports and perhaps led to the accumulation of massive wealth in the hands of few, the common working man in Cape Town benefitted only marginally.

5. Conclusion

Using a variety of documents from Dutch and British archives, this paper has computed long-run real wages for unskilled labourers in the Cape Colony, from its foundation in 1652 up to the unification of South Africa in 1910. The results have shown a rising trend in the standard of living throughout the Dutch period. Welfare ratios were consistently above 1, and only during the short-term crisis of the 1780s, did the ratios of the most pessimistic series drop below subsistence level. This rising trend persisted during the nineteenth century. Yet, while during the Dutch period both prices and wages were relatively stable as a consequence of VOC policies (with the potential positive effect of averting many subsistence crises caused by harvest failures), heavy fluctuations took place in the nineteenth century, as prices and wages were more profoundly influenced by the forces of the market. The comparison with the most developed parts of Europe has shown that during the early decades of the colony's existence, the Cape labourers had a relatively low purchasing power. Yet, by the end of the eighteenth century living standards had caught up with Leipzig and began to close the gap with London and Amsterdam. During the nineteenth century, Cape living standards were on a par with those on the European continent.

The analysis of annual average growth rates of these welfare ratios over various periods has led to some interesting preliminary conclusions for the debate on the Cape's economic development over the long-run. During the second half of the seventeenth century, welfare ratios were not only relatively low, growth was also minimal. The eighteenth century

⁶⁸ Due to the lack of data on the years 1911-1913, the average of 1904/1910 is taken to calculate the annual growth rate between 1872-1910 for Amsterdam. In all other instances the average of 1907/1913 was taken.

was a period of steady (though not spectacular) growth of Cape living standards, while during the same century workers in other parts of the world saw their purchasing power diminish. The nineteenth century, on the other hand, was a period of a general rise of prosperity in Europe, in the light of which the Cape's welfare growth seems exceptionally slow (in spite of secure property rights and resource windfalls). These preliminary results thus far support the views of Van Duin and Ross and Boshoff and Fourie, while contrast with Brunt and the traditional interpretations of scholars such as De Kiewiet and Feinstein.

Nonetheless, the inquiry has also revealed that more research still has to be done. First, more evidence on nominal wages during the Dutch period is necessary to point out which of the wage series presented in this paper is more accurate, and whether the rise in the soldiers' wage at the end of the eighteenth century reflect economic conditions at the Cape. Second, wage and price data for the first decades of the nineteenth century are still lacking, while such data is instrumental for testing the provocative propositions of Brunt regarding the benign effects of British rule. Third, GDP per capita is still the most widely used measure of the development of the overall economy, and such estimates can lead to more decisive insights on the issues at hand. Finally, accurate assessments of economic growth, supported by reliable data, are crucial to understand the causes of economic development and underdevelopment. Extensive empirical studies on economic indicators in Europe's former colonies will thus lead to valuable insights for debates and theories on the long-term effects of colonialism.

Appendix

The data used in this paper to sketch the developments in nominal wages, prices and real wages in South Africa are available in excel files upon request, please email: pza@iisg.nl. Below details on conversions and calculations are given.

Silver value per guilder: 9.8 grams of silver up to 1680 and 9.61 grams of silver from 1681 onwards. Source: Jan Luiten van Zanden, 'Prices and wages and the cost of living in the western part of the Netherlands, 1450-1800', website *Historical Prices and Wages* of the *International Institute of Social History*: <http://www.iisg.nl/hpw/brenv.xls>. Last update: December 11, 2009.

The value of the guilder used by the VOC in Asia was lower than the guilder in the Dutch Republic and the Asian currency was therefore referred to as 'light money'. The value of the Asian relative to the Dutch guilder fluctuated throughout the seventeenth and eighteenth centuries. According to Els Jacobs one Asian guilder was worth 20 percent less than the Dutch guilder prior to 1743; 16.35 percent less between 1743 and 1768, while after 1768 the value differences disappeared (see appendix table 1).⁶⁹

APPENDIX TABLE 1: VALUE OF ONE ASIAN GUILDER. Source: Jacobs (2000: 225-228).

Period	Expressed in Dutch Guilders	Expressed in Grams of Silver
1652 – 1680	0.80	7.84
1681 – 1742	0.80	7.69
1743 – 1768	0.84	8.04
1769 – 1790	1	9.61

⁶⁹ E. M. Jacobs, *Koopman in Azië. De handel van de Verenigde Oost-Indische Compagnie tijdens de 18^{de} eeuw* (Zutphen: Walburg Pers, 2000) 225-228.

The silver value per pound sterling was taken from the excel sheet of Gregory Clark, 'England prices and wages since the 13th century', on the *Global Price and Income History* website: <http://gpih.ucdavis.edu/Datafilelist.htm#Europe>: Last update 10 April 2006. During the period 1833-1913 the pound was worth 104.6 grams of silver.

Wages: For the nineteenth century, sometimes minimum and maximum rates were given instead of average rates. It is assumed that the minimum wages were paid more often than maximum wages, the average rate was therefore derived by using a lognormal average, the most common and accepted method to correct for overestimation: Lognormal average wage = (Lognormal minimum wage + Lognormal maximum wage) / 2.

Metric conversions: Prices were given per old Dutch or English weights and units of measurement. These were converted to metric using the table below. The table was based on Verhoeff (1983) and the datasheet 'English vs. Metric' on the *Global Price and Income History* website: <http://gpih.ucdavis.edu/Converting.htm>. Furthermore, data from the datasheet 'Weight vs. Volume' on the same website was used to convert litres into kilograms: 1 litre wheat, or beans, is 0.772 kilograms.

APPENDIX TABLE 2: METRIC VALUE PER ONE DUTCH OR ENGLISH UNIT OF MEASUREMENT

Dutch/British unit of measurement	Value	Metric
Aam	153.6	litre
Avoirdupois pound (lb.)	0.45359	kg
Bushel	35.293	litre
Gallon	37.854	litre
Last	3010	litre
Legger	921.6	litre
Mengel	1.2	litre
Mudde	111.5	litre
Picol	60	kg
Pond	0.49409	kg
Quart	11.012	litre
Schepel	27.9	litre
Vadem	2.9	m ³
Vracht	1.58	m ³
Yard	0.9144	m
Vat	155	litre

Wheat: Price series for wheat were found for the Cape Colony from 1836 to 1870. Because there is a correlation between bread and wheat (and the bread prices themselves were too high to serve as an alternative) the following equation was used to calculate the price for wheat for the remainder of the time period under discussion.

$$p \text{ WHEAT (BU)} = 0.1692 + 16.403 p \text{ BREAD} \quad R^2 = 0.5532$$

Peas & Beans: Price series for peas and beans were found for the Cape Colony from 1836 to 1870. Since the price of peas and beans was correlated with price of bread he following equation was used to calculate the price of peas & beans for the remainder of the time period under discussion:

$$p \text{ PEAS \& BEANS (BU)} = 0.2576 + 11.216 p \text{ BREAD} \quad R^2 = 0.5153$$

Butter: For the nineteenth century three different types of butter were found: first 'butter' without further specification for the period 1836-1855, after that butter was subdivided in two series, one for fresh butter and one for salt butter. For the early period the normal butter was used, before switching to salt butter in 1856 (which was cheaper than fresh butter), only during the years in the early twentieth century fresh butter was used, due to a lack of prices for salt butter in those years.

Cotton: A number of different types of cotton cloths were found in the sources, such as *salempoeris*, *baftas*, and *ginghams*. Because most prices were found for the bafta, and because the bafta was one of the cheaper varieties, those were used to create price series for cotton. A bafta had a length of 19 gaz and a width of 1 gaz and 9 tussus; one gaz was 67.31 cm and a tussus 2.8 cm (Hariharan 2002: 270, 306). Thus, a bafta was 12.78 meter in length and 0.93 meter in breadth. The price per m² cotton could thus be calculated:

$$p \text{ per m}^2 \text{ cotton} = \frac{p \text{ BAFTA}}{12.78 \times 0.93}$$

Regarding the nineteenth century, lacking cotton prices in Cape Town, these have been replaced by import prices paid for at the Port of Natal.

Fuel: During the VOC period firewood was written down per *vadem* or per *vracht*. A *vadem* is 2.9 cubic meters and from the price differences between the *vadem* and the *vracht* in 1671-1672 and 1676-1677, it was derived that a *vracht* firewood was 1.58 cubic meters. For the baskets, the price per M BTU was needed. The amount of M BTUs delivered per cubic meter of firewood depends on the type of tree. For the Cape Colony, the White Oak was used (Böeseken, 1938: 31) which delivers 25.7 M BTU per cord.⁷⁰ One cord is 128 cubic feet, and 1 cubic feet is 0.028 cubic meters:⁷¹ this gives 3.62 cubic meters per cord, delivering 25.7 M BTU: 3.62/25.7 = 0.14 cubic meter per M BTU. Thus, the price per M BTU could be calculated as follows:

$$p \text{ per M BTU} = \frac{p \text{ vracht FIREWOOD}}{1} \cdot 0.14$$

For the nineteenth century, import prices of coal in Cape Town were compiled. The price of coal was given per Lb., but for the CPI we needed prices per MBtu. According to the website University of Wisconsin at Stevens Point, and the Wisconsin Energy Education website: <http://www.uwsp.edu/cnr/wcee/keep/Mod1/Whatis/energyresourcetables.htm>: 1 Lb. Coal (Anthracite) is worth 12,500 Btu = 0.0125 MBtu. This conversion is almost similar to the conversion used by Allen et al.: 'the energy content of coal was rated at 27,533 Btu's per kilogram'.⁷²

⁷⁰ Information from the website: <http://mb-soft.com/juca/print/firewood.html>. Last visited 11 July 2011.

⁷¹ Information from the website.: <http://www.asknumbers.com/CubicFeetToCubicMeter.aspx>. Last visited 11 July 2011.

⁷² Allen et al., 'Wages, prices', 35.

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